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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/816,019

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Sushil D. Padlyar

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INTEL/BSTZ

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EXAMINER

NGUYEN, HUNG

ART UNIT

PAPER NUMBER

2851

MAIL DATE

DELIVERY MODE

04/20/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/816,019	Applicant(s) PADLYAR ET AL.	
	Examiner Hung Henry V. Nguyen	Art Unit 2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-8,11-14,16-19,21-26 and 29-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-8,11-14,16-19,21-26 and 29-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/20/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

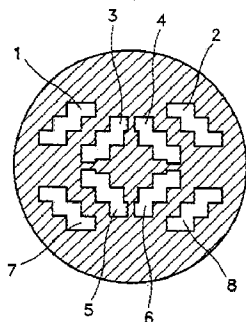
1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 6-8, 11-14, 16-19, 21-26 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Song et al (U.S.Pat. 5,691,803) in view of Poschenrieder et al (U.S. Pat. 5,712,698).

With respect to claims 1, 3, 6-8, 17-19, 21-25 and 30-33, Song et al discloses a hybrid light source, a corresponding lithographic apparatus comprising: a light source head (see figure 5) a first set of poles (1, 2, 7, 8) coupled to the light source head, and a second set of poles (3-6) coupled to the light source head, the second set of poles interposed within the first set of poles wherein the second set of poles has four poles (3, 4, 5, 6) approximately equidistant from each other .

Song et al further disclose the first set of poles has four poles (1, 2, 7, 8) and the light source is an excimer laser.



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Song et al also discloses a phase shift mask (6d) beneath the hybrid light source, (6b) the mask having a pattern; a first lens (6c) disposed between the light source and the mask and a second lens (6e) disposed between the mask and a substrate (6f) , the substrate including a layer of photoresist to be patterned with the pattern (see figure 6). Thus, Song et al disclose substantially all basic features of the instant claims. Song et al do not specifically disclose each pole of the first set of poles has an arc shape and each pole of the second set of poles has a shape selected from the group consisting of a circular shape and an elliptical shape as recited in the instant claims of the present application. But it has been held that it would have been an obvious matter of design choice to change shape and size, since such a modification would have involved a mere change in the shape and size of a component. A change in size or shape is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955). Specifically, in this case, in figures 10-12, Song et al discloses the shape of the poles can be circular or elliptical, or triangular. Furthermore, Poscheriender et al discloses a lithographic apparatus having a hybrid light source with a plurality of poles (see figures 2-8) and suggests that the number, shape and size of the poles can be varied to fit a specific lithography step (see col.3, lines 1-26). In view of the teachings of Poscheriender et al , it would have been obvious to one having ordinary skill in the art at the time the invention was made to select each pole of the first set of poles of Song's light source with an arc shape and each pole of the second set of poles of Song's light source with a circular and an elliptical shape for the at least the purpose of increasing depth of focus and thereby improving the quality of the printed images.

With respect to claims 11-14, 16 and 26-29, the method claims are seen to be inherent teachings in view of the existence of the above described apparatuses.

3. Claims 1, 3, 7-8, 11-14, 16-19, 21-26 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Markey et al (U.S.Pat. 7,283,205) .

With respect to claims 1, 3, 7-8, 11-14, 16-19, 21-26 and 29-33, Markey et al discloses a hybrid light source, a corresponding lithographic apparatus and method comprising substantially all of the limitations of the instant claims such as: a light source head (see figure 5) a first set of poles (50, 52) coupled to the light source head, wherein each pole of the first set of pole has an arc shape and a second set of poles (54, 56, 58, 60) coupled to the light source head, the second set of poles interposed within the first set of poles wherein the second set of poles has four poles approximately equidistant from each other .

Markey et al further disclose the first set of poles has two poles (50, 52) and the light source is an excimer laser. Markey et al also discloses a phase shift mask (26) beneath the hybrid light source, (40) the mask having a pattern; a first lens (16, 20, 24) disposed between the light source and the mask and a second lens (28) disposed between the mask and a substrate (30), the substrate including a layer of photoresist to be patterned with the pattern (see figure 4). Markey et al do not specifically disclose each pole of the second set of poles has a shape selected from the group consisting of a circular shape and an elliptical shape as recited in the instant claims of the present application. But it has been held that it would have been an obvious matter of design choice to change shape and size, since such a modification would have involved a mere change in the shape and size of a component. A change in size or shape is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ

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237 (CCPA 1955). Furthermore, Markey et al suggest that *“It will be appreciated by those skilled in the art with the benefit of the present description that the dimensions and location of the openings may be optimized from those depicted in figures 5 and 6”* (see col.5, lines 9-12) and *“the openings are customized fro a particular pattern, and for different patterns the opening must also be modified”* (see col.5, lines 24-27). In view of such suggestions, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select each pole of the second set of poles of Markey's light source with a circular and an elliptical shape for the at least the purpose of increasing depth of focus and thereby improving the quality of the printed images.

Prior Art Made of Record

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kawahara (U.S.Pat. 6,876,437) and Komatsuda (U.S.Pat. 6,563,567) discloses lithographic apparatuses, each of which comprises substantially all of the limitations of the instant claims of the present application.

Response to Amendment/Argument

5. Applicant's amendment filed January 20, 2009 has been entered. Claims 1, 6-7, 11, 16-18, 26 have been amended. New claims 30-33 have been added. Applicant's arguments with respect to prior art rejections have been carefully reviewed but have been traversed in view of new grounds of rejections as set forth above.

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6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Hung Henry Nguyen/
Primary Examiner
Art Unit 2851**

hvn
4/16/09